PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON
111(4):908–911. 1998.

A new species of mud shrimp, *Upogebia toralae,* from Veracruz, México (Decapoda: Thalassinidea: Upogebiidae)

Austin B. Williams and Jorge L. Hernández-Aguilera

(ABW) National Marine Fisheries Service Systematics Laboratory, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A.; (JLH-A) Facultad de Ciencias e Instituto de Ciencias del Mar y Limnología, Universidad Nacional Autónoma de México, A.P. 70306, México, 04510. D.F.

Abstract.—*Upogebia toralae,* a new species of mud shrimp from Veracruz, México is described and illustrated. The unique female holotype was collected intertidally in the Port of Veracruz which is strongly impacted by human activity. The species shares with many members of the genus from the western hemisphere a strongly developed proximal mesioventral spine on the merus of the second pereopod. The species stands alone, however, with respect to other characters. The triangular rostrum has no ventral spines, the anterior gastric region bears many anteriorly setose spines that are more or less transversely elongate and scalelike, and the palms of the chelae have a dorsal ridge that bears three erect and somewhat hooked spines on its proximal end.

Infaunal crustaceans collected from the State of Veracruz, México in the southwestern Gulf of México are known to include a wide variety of decapod crustacean species (Hernández-Aguilera et al. 1996). This species richness has been attributed to the location of Veracruz in the tropical zone, with wet weather and abundant rains, where temperature varies from 10° to about 35°C (Soto & García 1989). Nearshore habitats include a great variety of biotopes such as sandy beaches, estuaries, extensive mangrove swamps, marshes, and nearly 28 coral reefs. A mud shrimp, *Upogebia toralae,* new species, has been collected in intertidal waters of this environment in an area of the Port of Veracruz that is strongly impacted by human activity, including oil spills and industrial pollution, urban effluents, and tourism.

Upogebia toralae, new species
Fig. 1

Material examined.—México: USNM 285522, 1 ♀ (holotype), S of Puerto de Veracruz, Ver. México, 19°11′43″, 96°07′36″W, intertidal, 8 May 1997, col. R. E. Toral-Almazán and J. L. Hernández-Aguilera.

Diagnosis.—Projections to either side of rostrum each ending in a spine; single spine on postocular margin; anterior gastric region bearing many anteriorly setose spines more or less transversely elongate and scalelike. Abdominal sternites unarmed. Telson subrectangular. Merus of cheliped bearing subdistal dorsal spine and row of 5 spines on ventral margin; carpus with strong mesiodistal dorsal spine and 2 moderate spines on mesiodistal margin; palms of chelae bearing 3 erect and somewhat hooked spines on proximal end of dorsal ridge. Merus of pereopod 2 with proximal mesioventral spine and 1 subdistal dorsal spine; carpus with 1 subdistal dorsal spine and 1 distoventral spine. Merus of pereopod 3 with 1 distodorsal spine and row of 3 spines on ventral margin. Merus of pereopod 4 spineless.

Description.—Rostrum triangular, horizontal in lateral view but with slightly downturned tip exceeding eyestalks by in-

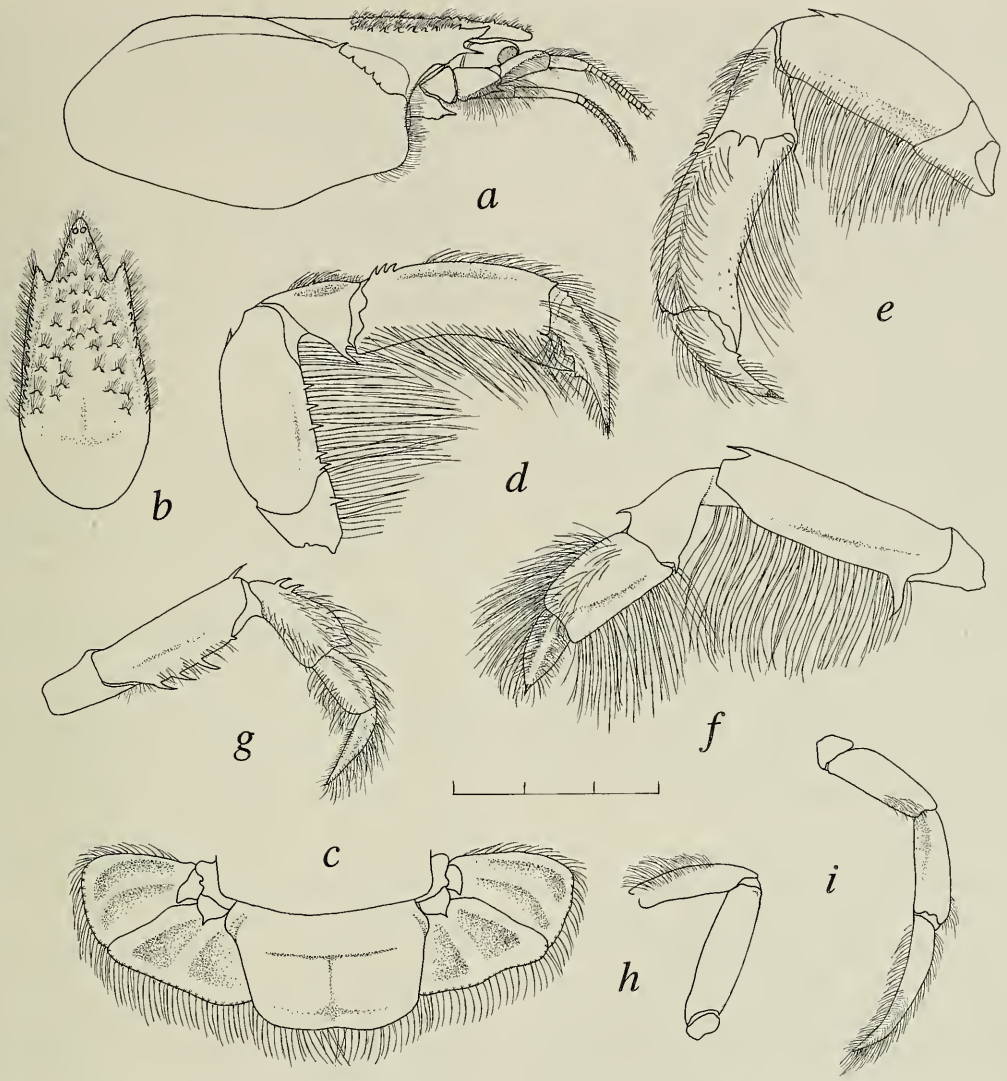

Fig. 1. *Upogebia toralae,* new species, USNM 285522, ♀ Holotype; *a,* carapace and cephalic region, lateral; *b,* anterior carapace, dorsal; *c,* telson and uropods, and part of abdominal segment 6, dorsal; *d,* cheliped, right lateral; *e,* cheliped, right mesial; *f,* pereopod 2, left; *g,* pereopod 3, right; *h,* pereopod 4, left (fragment); *i,* pereopod 5, right. Scale = 3 mm.

terval equal to length of cornea; 2 subdistal erect dorsal spines with tiny corneous tips followed on each side by smaller marginal spines, 3 on right, 4 on left; median line raised into low ridge. Pilose-armed field on anterior gastric region of carapace ornamented with rather sparse, transversely elongated, well separated scalelike spines bearing short setae anteriorly, about 10 of these spines along each lateral margin of anterior gastric region; scattered smaller scalelike spines mesial to each lateral margin, posterior region of carapace glabrous. Lateral ridge on either side of anterior gastric region extended anteriorly into process lateral to rostrum and bearing crest of 9 and 11 spines, more on left than on right. Shoulder lateral to cervical groove bearing about 4–5 spines below intersection with thalassinidean line, dorsal 2 spines prominent and

acute, spines anteroventral to these much smaller or obsolescent; thalassinidean line continuing to posterior margin of carapace without interruption; postocular margin of carapace armed with acute spine at level of eyestalk.

Abdominal sternites unarmed.

Telson subrectangular, posterior margin shallowly biarcuate, smooth; transverse proximal ridge prominent, lateral ridge at each side obsolescent.

Eyestalk stout, slightly elevated distally, reaching along basal ⅔ of rostrum; lower margin slightly convex; cornea narrower than diameter of stalk and directed ventrolaterally.

Antennular peduncle reaching to about ⅔ length of terminal article of antennal peduncle, combined length of proximal 2 articles subequal to length of terminal article.

Antennal peduncle with distal article and distal half of penultimate article extending beyond tip of rostrum; article 2 bearing strong, slender, subdistal ventral spine; moderate oval scale bearing small upturned distal spine.

Maxilliped 3 bearing epipod.

Epistomal projection rather broad in lateral view, bearing prominent apical spine.

Chelipeds with ventral margin of ischium bearing 1 spine. Merus with row of 5 spines on ventral margin and a subdistal spine on dorsal margin. Carpus trigonal, with shallow longitudinal lateral groove, strong spine at anterior ventrolateral corner; dorsal crest margin bearing only 1 spine on basal ⅓ of its length, obscured by oblique tuft of setae; short spine on anterodorsal margin mesial to articulation with propodus; 2 moderate spines on anteromesial margin. Chela length about 2.7 times chela height; palm with dorsal ridge bearing 3 prominent slightly hooked spines at its proximal end, paralleled by sparsely setose mesiodorsal ridge ending in small distal spine; ciliated oblique ridge on lower lateral surface; both lateral and mesial surfaces of palm obscurely punctate. Fixed finger with extended slender tip and lobular tooth on occlusive edge. Dactyl at least twice length of fixed finger, drawn to corneous tip and bearing 2 lobular teeth on proximal half of occlusive edge, distalmost tooth opposing tip of fixed finger; dorsal and lateral longitudinal ridges heavily setose.

Pereopod 2 reaching about to distal ¼ of cheliped palm; carpus with acute subdistal dorsal spine and nearly equal subdistal ventral spine; merus with slender subdistal-spine on dorsal margin and very strong proximal mesioventral spine. Pereopod 3 with carpus bearing 2 somewhat hooked dorsal spines on proximal ⅓ of length; merus bearing distodorsal spine and 3 strong spines on ventral margin. Pereopod 4 (fragmentary) with spineless merus. Pereopod 5 of usual form, with cleaning brush on propodus.

Uropods with acute spine on protopod above base of mesial ramus; lateral ramus with mesial rib bearing smaller spine proximally; both rami slightly exceeding telson, and with distal margins bearing rather uniformly spaced row of granules.

Measurements (*in mm*).—Anterior carpace length 5.3, carapace length 7.5, length of chela including fixed finger 3.5, midlength height of chela 1.3.

Known range.—Confined to type locality.

Remarks.—*Upogebia toralae,* new species, shares with many eastern Pacific and western Atlantic members of the genus a second pereopod on which the merus bears a strong proximal mesioventral spine (see keys to species in Williams 1986, 1993). The abdominal sternites and pleura bear no ventral spinules.

The species stands alone, however, with respect to several characters. The triangular rostrum has no ventral spines. The anterior gastric region bears many anteriorly setose spines that are more or less transversely elongated and scalelike rather than being simple spines or spinelike tubercles. The palms of the chelipeds have a dorsal ridge that bears 3 erect and somewhat hooked spines on its proximal end. Moreover, the carpus has a mesiodorsal crest that bears 1

spine on the basal ⅓ of its length as well as the usual strong distal spine rather than a series of spines along all of its length. In the key to species of *Upogebia* in the Western Atlantic (Williams 1993), *U. toralae* lies closest to *U. marina* Coelho.

Etymology.—The species is named in honor of Rosa Estela Toral-Almazán, Facultad de Ciencias, UNAM, who has contributed to many collections from the Gulf of Mexico, in one of which the holotype was taken.

Acknowledgments

We thank Alfredo Ruiz-Nuño, Darryl L. Felder, and Michael Vecchione for critical reading of the manuscript, and Mollie Oremland for preparing the illustrations. This study was supported in part under funding to one of us (JLH-A) through the Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (FB384/HO22/97).

Literature Cited

Hernández-Aguilera, J. L., R. E. Toral-Almazán, & J. A. Ruiz-Nuño. 1996. Especies catalogados de crustáceos estomatópodos y decápodos para el Golfo de México, Rio Bravo, Tamps. a Progreso, Yuc. Secretaría de Marina y Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, México, D. F., 132 pp.

Soto, M., & E. García. 1989. Atlas climático del Estado de Veracruz. Instituto de Ecología, México, 125 pp.

Williams, A. B. 1986. Mud shrimps, *Upogebia,* from the eastern Pacific (Thalassinoidea: Upogebiidae).—Memoirs of the San Diego Society of Natural History 14:1–60.

———. 1993. Mud shrimps, Upogebiidae, from the western Atlantic (Crustacea: Decapoda: Thalassinidae).—Smithsonian Contributions to Zoology 544:1–77.